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Claims

1. A heating device (10,36,110), adapted for use with a drinking vessel suitable for containing a fluid, for example an infant's feeding bottle, the device (10,36,110) including:  
means (12,112) for releasably connecting the device (10,110) to a vessel, so as to be in fluid communication therewith;

inlet means (14,114) for receiving, in use, a flow of fluid from a vessel;

non-return means (64,146) formed and arranged to prevent fluid that has passed through the inlet means (14,114) from returning to a said vessel;

outlet means (16,116), for allowing, in use, a flow of fluid to leave the device (10,36,110), the outlet means (16,116) being in fluid communication with the inlet means (14,114); and

means (18,122) for heating a fluid, in use of the device (10,36,110), as it flows between the inlet means (14,114) and outlet means (16,116);

whereby, in use, a flow of fluid from a vessel flows through the device (10,36,110) from the inlet means (14,114) to the outlet means (16,116) and leaves the device (10,36,110) through the outlet means (16,116) at an elevated temperature, and is prevented by said non-return means (64,146) from returning to a said vessel.

2. A heating device (10,36,110) as claimed in claim 1, wherein the device (10,36,110) includes a non-return means on the outlet means (16,116) to prevent fluid returning and coming into contact with the heating means (18,122).

3. A heating device (10,36,110) as claimed in any preceding claim, wherein the means for heating (18,122) a said flow of fluid as it flows between the inlet means (14,114) and outlet

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means (16,116) is a heat exchanger of the shell and tube type, or a heater element powered by electricity or an exothermic chemical reaction.

5 4. A heating device (10,36,110) as claimed in any preceding claim, wherein the inlet means (14,114) and outlet means (16,116) are connected by a heated passageway (120).

10 5. A heating device (10,36,110) as claimed in any preceding claim, wherein the inlet means (14,114) and outlet means (16,116) are connected by a helical path (124).

15 6. A heating device (10,36,110) as claimed in claim 5 when dependant on claim 4, wherein the helical path (124) is within the heated passageway (120) and releasably connected to the heated passageway (120).

7. A heating device (10,36,110) as claimed in claim 6, wherein the helical path (124) is disposable.

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8. A heating device (10,36,110) as claimed in any preceding claim, wherein the device (10,36,110) includes a fluid sensor that activates the heating means, in use, when it senses the presence of a flow of fluid between the inlet means (14,114) and the outlet means (16,116).

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9. A heating device (10,36,110) as claimed in any preceding claim, wherein the device (10,36,110) includes at least one thermistor (130,134,136) to measure the temperature of the liquid feed in at least one of the inlet means (14,114), between the inlet means (14,114) and outlet means (16,116), or at the outlet means (16,116).

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10. A heating device (10,36,110) as claimed in only one of claims 4 to 9 where the heated passageway (118) is heated by a heated sheath (120) which includes at least one thermistor (130) embedded in said sheath to measure its temperature.

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11. A heating device (10,36,110) as claimed in any preceding claim, wherein the device (10,36,110) includes a thermostat to ensure the temperature of the feed does not exceed a predetermined temperature.

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12. A heating device (10,36,110) as claimed in any preceding claim, wherein the device (10,36,110) includes a bimetallic strip.

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13. A heating device (10,36,110) as claimed in any preceding claim, wherein the device (10,36,110) includes a tilt switch to switch the device off after a set time of being horizontal.

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14. A heating device (10,36,110) as claimed in any preceding claim, wherein the heated passageway (120) includes a vent to prevent a vacuum being formed within the heated passageway (120) and to ensure a steady flow of liquid through the heated passageway (120).

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15. A heating device (10,36,110) as claimed in any preceding claim which further comprises a LED (144) to indicate operation and provide illumination in use.

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16. A drinking system for an infant, to provide an infant with a liquid feed at an acceptable consumption temperature, the feeding system including:

a vessel (38, 160) suitable, in use, for storing a liquid feed at a storage temperature; and

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a heating device (10,36,110) as claimed in any of claims  
1 to 15,

whereby, in use, the liquid feed is drawn from the  
vessel (38,160), through the device (10,36,110), to an  
5 infant, and the temperature of the liquid feed is elevated as  
it passes between the inlet means (14,114) and outlet means  
(16,116) of the device (10,36,110), from the storage  
temperature to an acceptable feeding temperature and is  
prevented by said non-return means (64, 146) from returning  
10 to said vessel.